

## Claims

1. A microcrystallized polyol composition comprising at least two polyols, wherein said polyols are selected from the group consisting of maltitol, xylitol and lactitol and wherein said composition contains at least 25 % by weight of each of at least two of said polyols microcrystallized together into a solid microcrystalline product.
2. A microcrystallized polyol composition according to claim 1, wherein said solid product comprises a porous granular composition of randomly agglomerated microcrystals containing said at least two polyols.
3. A microcrystallized polyol composition according to claim 2, wherein said solid product has a free moisture content below 1%, preferably 0.05-0.5%.
4. A microcrystallized polyol composition according to claim 1, which contains from 25 to 75 % by weight xylitol and from 75 to 25 % by weight maltitol, preferably 30% or more of both xylitol and maltitol, from 25 to 75 % by weight xylitol and from 75 to 25 % by weight lactitol, preferably 30% or more of both xylitol and lactitol, or from 25 to 75 % by weight lactitol and from 75 to 25 % by weight maltitol, preferably 30% or more of both lactitol and maltitol, said composition most preferably comprising equal amounts of said polyols.
5. A microcrystallized polyol composition according to claim 1 which contains a combination of all three of said polyols, wherein two of said polyols are present in at least 25% by weight each, preferably two of said polyols comprising 90% or more of the weight of said composition, most preferably all three of said polyols being present in 30% or more of the weight of said composition.
6. A microcrystallized polyol composition according to claim 1 or 2, which is a substantially homogeneous and uniform composition consisting essentially throughout its entire structure of a multitude of randomly agglomerated microcrystals containing two or more of said polyols microcrystallized together.
7. A microcrystallized polyol composition according to claim 6, wherein said two or more polyols are non-segregating within the composition.

8. A microcrystallized polyol composition according to claim 7 which consists essentially of microcrystals containing two of said polyols.
9. A microcrystallized polyol composition according to claim 7, wherein said composition additionally contains a minor amorphous component of one or more of said polyols.
10. A microcrystallized polyol composition according to claim 1, wherein said composition additionally contains integrally in its structure additional components such as excipients, binders, active or inert ingredients and/or other sweeteners.
11. A microcrystallized polyol composition according to claim 1, wherein said composition comprises an inner core portion which is different from the microcrystallized outer portion.
12. A microcrystallized polyol composition according to claim 11, wherein said composition comprises an inner core of milled maltitol, xylitol and/or lactitol, said inner core preferably comprising milled maltitol, xylitol and/or lactitol in the same ratio as the ratio of maltitol, xylitol and/or lactitol in the microcrystalline outer core, said inner core optionally comprising milled or microcrystalline particles of other polyol(s) or milled or powdered active and /or inert ingredients.
13. A microcrystallized polyol composition according to claim 1, wherein said composition contains microcrystals having a xylitol/maltitol ratio by weight of about 1:1.
14. A microcrystalline polyol composition according to claim 13, which is substantially homogeneous, non-segregating and non-hygroscopic.
15. A microcrystallized polyol composition according to claim 13, wherein said microcrystals comprise an eutectic mixture of xylitol and maltitol.
16. A microcrystallized polyol composition according to claim 1, wherein said microcrystalline composition has a melting enthalpy which is lower than the calculated value for combined crystalline xylitol and crystalline maltitol.
17. A microcrystallized polyol composition according to claim 1, wherein the individual microcrystals have an average size of 5-10  $\mu\text{m}$  or less.

18. A microcrystallized polyol composition comprising at least two polyols, wherein said polyols are selected from the group consisting of maltitol, xylitol and lactitol and wherein said composition contains at least 25 % by weight of each of at least two polyols microcrystallized together into a solid microcrystalline product having a substantially homogeneous and porous granular structure, said structure consisting of randomly agglomerated microcrystals of said polyols adhered together by microcrystallization in the fluidized state.

19. A process for the microcrystallization of polyols into a polyol composition, characterized in that

- a liquid feed of at least two dissolved polyols selected from the group consisting of maltitol, xylitol and lactitol is sprayed into contact with a gas suspended dry feed of small crystals containing the same polyols so as to wet the surface of said dry feed particles with said liquid feed

- the solvent of said liquid feed is evaporated causing microcrystallization of said dissolved polyols on said dry feed particles

- the microcrystallized particles are conditioned to provide a solid randomly agglomerated microcrystalline polyol composition, the ratio of said at least two polyols in said feeds being such that the resulting microcrystalline composition contains at least 25 % by weight of each of said at least two polyols.

20. A process according to claim 19, wherein said liquid feed comprises a solution containing said at least two polyols dissolved in water at a total concentration of about 60-90% on DS.

21. A process according to claim 19, wherein said liquid feed comprises separate solutions of each of said at least two polyols dissolved in water, said separate solutions being simultaneously sprayed onto said dry feed particles.

22. A process according to claim 19, wherein said liquid feed comprises separate solutions of each of said at least two polyols dissolved in water, said separate solutions being separately and intermittently sprayed onto said dry feed particles.

23. A process according to claim 19, wherein the dry feed comprises recirculated microcrystallized polyol composition milled and/or sieved to a particle size of less than 200  $\mu\text{m}$ , preferably less than 100  $\mu\text{m}$ .
24. A process according to claim 19, wherein the ratio of liquid feed to dry feed is between 2:1 and 1:4, preferably between 1:1 and 1:2 on DS.
25. A process according to claim 19, 20, 21, 22 or 23 wherein said liquid feed and/or dry feed contains a minor portion of an excipient, an active or inert ingredient and/or other sweetener than maltitol, xylitol or lactitol.
26. A process according to claim 19, wherein the dry feed comprises a powder containing core material selected from the group consisting of milled crystals of said at least two polyols, milled crystals and/or microcrystals of another polyol, milled crystals, microcrystals and/or powders of other inert or active ingredient(s), said core material being milled and/or sieved to a particle size of less than 200  $\mu\text{m}$ , preferably less than 100  $\mu\text{m}$ .
27. A process according to claim 19, wherein the wetted feed particles are dried to a free moisture content of about 0.5-3 % in the gas suspended state.
28. A process according to claim 27, wherein said gas suspended particles are retained in a suspended state until they have grown to a predetermined weight.
29. A process according to claim 19, wherein the microcrystallized particles are collected from the suspended state on a surface to form a porous agglomerated powder layer.
30. A process according to claim 19, wherein the microcrystallized particles are conditioned at a temperature of about 40-90°C, preferably about 65-72°C, most preferably about 67-70°C to a free moisture content below 1%, preferably about 0.05 to 0.5%.
31. A process according to claim 29, wherein the conditioned agglomerated layer is crushed to provide a granular product having a mean granule size of, on an average, 0.05 to 2 mm, preferably 0.1 to 0.4 mm.
32. Use of the microcrystallized polyol composition according to claim 1 as a bulk or

special sweetener for the total or partial replacement of sucrose.

33. Use of the microcrystallized polyol composition according to claim 1 in confectionery, bakery products, cereals, desserts, jams, beverages, chocolate, marzipan, table top sweeteners, chewing gum, ice cream, and dietetic products as well as in pharmaceutical and oral hygiene products.

34. The use according to claim 33 wherein said polyol composition is used in a pharmaceutical or oral hygiene preparation as an active ingredient or as a substantially inert component such as a diluent, carrier, excipient and/or sweetener.

35. The use according to claim 33 wherein said polyol composition is included in a non-cariogenic and/or cariostatic chewing gum.

36. The use according to claim 33 wherein said microcrystallized polyol composition is directly compressed into a tablet.

37. An edible, pharmaceutical and/or oral hygiene product, which contains a microcrystallized polyol composition comprising at least two polyols, wherein said polyols are selected from the group consisting of maltitol, xylitol and lactitol and wherein said composition contains at least 25 % by weight of each of at least two of said polyols microcrystallized together into a solid microcrystalline product.